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ABSTRACT

Seventy good readers and 70 poor readers who were students at a community college participated in a study that examined the role of adversative connectives in helping students integrate information across sentence boundaries. Three functions of adversative connectives were examined: contrast or conflict, parallel points, and foregrounding information. The reading instrument consisted of 10 paragraphs of comparison-contrast taken from the "World Book Encyclopedia." In one version, the connectives appeared in the text as they did in the "World Book," while in the manipulated version, they were deleted. One general question requiring the integration of pre- and postconnective material followed each paragraph. The writing instrument consisted of information in outline form, presenting a comparison-contrast. Directions instructed students to transform the outline into a paragraph, including all the information given and adding whatever words were necessary to communicate the information as clearly as possible. Test results showed that (1) adversative connectives aided poor readers' ability to exclude irrelevant information, (2) connectives that functioned to foreground information improved good readers' performance, and (3) poor readers who read the test version with connectives included more connectives in their written responses than poor readers who read the test version without connectives. (HOD)

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An Investigation of the Role of Adversative Connectives in Helping Good and Poor Readers to Integrate Information in Text

This research grew from a concern with the reading difficulties of the skill-deficient college student. Faced with increasing numbers of such students, colleges have formed remedial departments which offer courses in skill areas. However, since the phenomenon of the poor reader in college is a relatively new one, much needs to be learned about the sources and nature of their problem.

An examination of the products of a common reading task--formulating the main idea--shows that many non-fluent college readers do not achieve an appropriate fit between a passage's content and their formulation of the main idea. They do not incorporate all the critical information into a summary statement, failing either to expand or to modify the original idea in the light of subsequent propositions. As a result, the main idea as identified by the student only partially represents the passage.

The ability to integrate information across sentence boundaries, thus, is crucial to formulating summary statements. And one of the features of language that can help readers to see the relationship between ideas is connectives.

Review of the Literature

Because of the close connection between connectives and paragraph organization and because reading comprehension is revealed through a writing task, the literature review examined two areas in addition to connectives--organization and reading/writing relationships.

Organization

Numerous studies (Ceppi, 1973; DiVesta, Schultz, & Dangel, 1973; Frase, 1969, 1973; Kintsch, Kozminsky, Stresby, McKoon, & Keenan, 1975; Kintsch, Mandel, & Kozminsky, 1977; Meyer, 1975; Meyer & McConkie, 1973: Myers, 1974; Myers, Pezdek, & Coulson, 1973; Perlmutter & Royer, 1973; Schultz & DiVesta, 1972) indicate that organization exerts an influence on recall and that particular structures affect the amount of information recalled (Meyer, 1982; Meyer & Freedle, 1979). What needs to be

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explored is the differential effect of organization on good and poor readers.

Reading/Writing Relationships

Evidence of a connection between reading and writing comes from language development research which points to syntactic patterns as the link (Chomsky, 1972; Loban, 1961; Ruddell, 1965; Strickland, 1962). While it seems that poor readers on the college level also experience problems with writing, studies of the relationships between reading and writing abilities are both sparse and contradictory (Bossone & Weiner, 1973; Grobe & Grobe, 1977; Lunsford, 1978; Thomas, 1976).

Connectives

Studies show the developmental nature of the understanding of connectives (Evans & Ballance, 1980; Hutson & Shub, 1974; Katz & Brent, 1968; Robertson, 1968; Stoodt, 1970) and the facilitating effect of connectives (Britton, Glynn, Meyer, & Penland, 1982; Irwin, 1980a, 1980b). In terms of differences between good and poor readers, studies show that good readers are less dependent on connectives (Marshall & Glock, 1978-1979; Meyer, Brandt, & Bluth, 1980) but also more aware of their meanings (Crismore, 1980). Thus, a contradiction of sorts emerges. On the one hand, it appears that good readers are not dependent on connectives, that they are able to infer the underlying textual relations without the explicit guidance of connectives. On the other hand, it seems that poor readers, who need the guidance more, are less able to benefit from it.

If poor readers do indeed need connectives more than good readers, what do they need them for? And in what ways are good readers better able to make use of connectives? To address these questions of reliance and sensitivity in a meaningful way, this study examined one type of connective.

Adversative connectives were chosen and three functions that adversative connectives perform were examined--contrast or conflict, parallel points, and foregrounding information.

Contrast or conflict. Contrast or conflict is probably the most familiar function of adversative connectives. One example is:

> Magazines, like newspapers, represent the work of many writers. But magazines differ from newspapers in form and content (italics mine). (Jacobi, 1979, p. 38)

With conflict, an element of dissonance enters (Borkin, 1978).

Parallel points. When adversative connectives signal parallel points, the connectives alert the reader to the fact that a number of pieces of information carry equal weight. The reader can then separate the ideas into appropriate blocks of meaning or chunks. For example, in the following paragraph comparing pearls to other gems, the two buts indicate that there are two differences between pearls and other gems and that these differences are of equal importance.

> Pearl is one of the most valuable gems. Large perfectly shaped pearls rank in value with the most precious stones. But pearls differ from other gems. Most gems are minerals that are mined from beneath the earth. But pearls are formed inside the shells of oysters. Mineral gems are hard and usually reflect light. But pearls are rather soft, and absorb, as well as reflect, light (italics mine). (Pough, 1979, p. 193)

Foregrounding information. Foregrounding information is perhaps the least familiar association with adversative connectives. What the connectives do here is to place information in a prominent or in a less salient position. In the following text, the word but brings the information in that sentence into prominence.

> A baby's personality begins to develop soon after birth. The development continues throughout childhood and even throughout life. But most experts believe that a person's very early experiences have an especially strong influence on later personality development (italics mine). (Lawrence, 1979, p. 4b)

Research Questions

Do adversative connectives make more of a difference for good or poor readers?

Do adversative connectives in their different functions--contrast or conflict, parallel points, and foregrounding information--make more of a

difference for good or poor readers?

What are the relationships between use of adversative connectives in reading and writing?

What is the correlation between the criterion measure and good and poor readers' scores on the reading instrument with and without connectives?

Method

Subjects

Subjects included seventy good readers and seventy poor readers who were students at a community college in a major metropolitan area in the Northeast. Good and poor readers were identified according to their performance on the Descriptive Test of Language Skills.

Materials

Reading instrument. The reading instrument consisted of ten paragraphs of comparison-contrast taken from the World Book Encyclopedia (1979). Paragraphs were taken from the World Book so as to provide readable and consistent prose that reflects the kind of informational, academic style that college students need to be able to understand.

There were two test versions of the reading instrument. In one version, the connectives appeared in the text as they do in the World Book, while in the manipulated version, they were deleted.

One general question requiring the integration of pre- and post-connective material followed each paragraph. Types of questions included definition, contrast, and informational. In most cases, one or more sentences was required to answer the question.

Writing instrument. The experimenter-constructed writing instrument consisted of information in outline form, presenting a comparison-contrast. Directions instructed students to transform the outline into a paragraph, including all the information given, adding whatever words might be necessary to communicate the information as clearly as possible.

Testing and Scoring Procedures

The researcher randomly distributed the two versions of the test

to students in classroom situations. An hour was allowed for the task.

Scoring the reading instrument. Reading protocols were scored according to an experimenter-constructed key which was confirmed by three college reading instructors. The key coded each paragraph according to the information included. Each paragraph was worth a maximum of five points. Since some paragraphs had more features than others, there was a variable number of points for different pieces of information. Two examples follow.

> Abandonment, in law, occurs when a person intentionally gives up all rights to something he owns. For example, if a person purposely throws away a ring, the ring has been abandoned. The first person to find it becomes the new owner. But if a person loses a ring, even through carelessness, it has not been abandoned. It is still a person's property. Real property, such as a house or lot, cannot be abandoned. But certain ownership privileges, such as the right to travel across another person's property, may be given up. (Wade, 1979, p. 6)

In relation to the question, According to the passage, what can be abandoned and what can't be abandoned?, the answer key reads:

What can = personal property (a ring)	1 point
What can = ownership privileges	1 point
What can't = real property (house or lot)	1 point
What can't = something lost	1 point
No irrelevant information	1 point

Another paragraph discusses city planning.

> The term city planning usually refers to attempts to improve existing communities. But it can also mean the development of entirely new communities by governments and private companies. These communities, called new cities and new towns, differ from suburbs in at least one important way. Most suburbs are designed chiefly as residential communities for people who work in nearby cities. Planners of new communities try to make them fully self-supporting by attracting businesses, thus providing places where the residents can work. (Meltzer, 1979, p. 460a)

The question asks for a definition of city planning, according to the paragraph. The answer key reads:

City planning = attempts to improve existing communities	2 points
City planning = attempts to develop new communities	2 points
No irrelevant information	1 point

For all paragraphs, a point was given if no irrelevant information was included. This was to insure a penalty for the random copying of chunks or text, to make sure that answering involved the process of selection. While not included in the score, the presence or absence of connectives in responses to the reading instrument was noted.

Thus, for each student, the following scores were computed in relation to the reading instrument:

Total Score (0-50)

Total Score for the Inclusion of Information (0-40)

Total Score for the Exclusion of Irrelevant Information (0-10)

Total Number of Connectives in Responses to the Reading Instrument (0-10)

Scoring the writing instrument. Students' responses to the writing instrument were evaluated according to the presence or absence of an appropriate connective. Regardless of the number of connectives, the maximum score was 1. The minumum score was 0.

Analysis of the Data

Reading Instrument

Twelve 2 x 2 analyses of variance were performed. The two independent variables were level of reading skill (good and poor) and test version (with connectives and without connectives) and the three dependent variables were total score on the reading instrument, total score for the inclusion of information on the reading instrument, and total score for the exclusion of irrelevant information.

There were four conditions for these dependent variables. First, the score on all ten apragraphs was used. Each of the next three

conditions used selected paragraphs exemplifying the different functions of adversative connectives--contrast or conflict, parallel points, and foregrounding information.

Difference scores of means across test versions were compared to determine whether the presence of connectives made more of a difference in the scores of good or poor readers and simple main effects were examined to determine whether these differences were significant.

An additional analysis of variance was performed with the dependent variable of total number of connectives in responses to the reading instrument.

The following correlations were determined: between total score on the reading instrument and total score for the exclusion of irrelevant information and between total score on the reading instrument and scores on the criterion measure.

Writing Instrument

An analysis of variance was performed to see if there was a significant difference between good and poor readers' use of connectives on the writing instrument.

Results

According to the analyses of variance, there were a number of significant findings. Three were especially interesting in showing the differential effect of adversative connectives on good and poor readers. First, adversative connectives aided poor readers' ability to exclude irrelevant information. Second, connectives that functioned to foreground information improved good readers' performance. And third, poor readers who read the test version with connectives included more connectives in their written responses than poor readers who read the test version without connectives.

Research Question #1: Do Adversative Connectives Make More Of a Difference For Good or Poor Readers?

Table 1 presents a summary of significant results for reader and test version for all dependent variables--total score, total score

for the inclusion of information, and total score for the exclusion of irrelevant information--using all ten paragraphs on the reading instrument.

Insert Table 1 about here

In all cases, there was a significant difference for reader, with good readers consistently performing better than poor readers. Test version was significant for the condition of all paragraphs in relation to total score and total score for the exclusion of irrelevant information, with good and poor readers performing better in response to the test version with connectives than to the test version without connectives.

Table 2 summarizes the pattern of difference scores between means across test version showing that the presence of connectives made more of a difference for poor readers in relation to the exclusion of irrelevant information.

Insert Table 2 about here

The difference score of poor readers (.94) exceeded that of good readers (.49). Simple main effects were significant across test version for poor readers ($F = 7.274$, 1/136 df, $p < .01$).

Research Question #2: Do Adversative Connectives in Their Different Functions--Contrast or Conflict, Parallel Points, Foregrounding Information--Make More of a Difference For Good or Poor Readers?

Table 3 presents a summary of significant results for reader and test version for all dependent variables--total score, total score for the inclusion of information, and total score for the exclusion of irrelevant information--for the three different functions of adversative connectives--contrast or conflict, parallel points, and foregrouding information.

Insert Table 3 about here

Only in relation to foregrounding information were there significant differences for test version, with good readers performing significantly better than poor readers in response to the test version with connectives. Simple main effects ere significant in relation to total score (F = 8. 1116, 1/136 df, $p < .01$), total score for the inclusion of information (F = 5.975, 1/136 df, $p < .05$), and total score for the exclusion of irrelevant information (F = 8.193, 1/136 df, $p < .01$).

Research Question #3: What Are the Relationships Between Reading and Writing?

An analysis of variance for the writing score by reader showed a significant difference (F = 41.36, 1/136 df, $p < .001$), with good readers including more connectives than poor readers. Looking at the inclusion of connectives in responses to the reading instrument, an analysis of variance showed a significant difference for reader (F = 11.875, 1/136 df, $p < .001$) with good readers including more connectives in their responses to the reading instrument than poor readers (1.29 as compared to .67). There was also a significant difference for test version (F = 13.005, 1/136 df, $p < .001$) with all readers including more connectives given the reading instrument with connectives. In addition, there was a significant interaction. In response to the version without connectives, the number of connectives in responses to the reading instrument for poor readers drops from 1.20 to .14.

Insert Table 4 about here

This drop in the number of connectives used by poor readers from the test version with connectives is reflected in the fact that across test versions, the difference score of poor readers (1.06) exceeded that of good readers (.23). Figure 1 shows the differential effect of connectives in the reading instrument on good and poor

readers' performance. Simple main effects revealed a significant difference for test version for poor readers (F = 17.584, 1/136 df, $p < .001$).

Insert Figure 1 about here

Research Question #4: Is There a Correlation Between the Criterion Measure and Good and Poor Readers' Scores on the Reading Instrument?

The correlation was r = .4835, significantly non zero, explaining about 23 percent of the variation.

Discussion

The results shed some light on the questions which motivated this study--questions about poor readers' reliance on connectives and good readers' sensitivity to them. In addition, an interplay between reading and writing for poor readers was suggested.

Exclusion of Irrelevant Information

This study found that there is a strong correlation between the exclusion of irrelevant information and total score, a correlation that explains about 63 percent of the variation. The ability to exclude irrelevant information, then, is indeed an important characteristic of good readers. Therefore, it is of great interest that poor readers benefited from the presence of adversative connectives in the area of exclusion of irrelevant information.

This finding suggests an important function of adversative connectives for poor readers. These connectives provide the guidelines that poor readers need in order to direct them to relevant portions of the text. Poor readers seem to need a visible structure to help them to see what is important and to keep them grounded in the text. Without the frames that connectives provide, they often misinterpret text.

An examination of the protocols of poor readers who read the

test version without connectives suggests a number of explanations for the facilitating effect of adversative connectives in helping poor readers to exclude irrelevant information. Irrelevant information came from two sources--textual material and extra-textual material.

One type of misinterpretation was to give excessive weight to propositions of minor importance. For example, in relation to one of the passages, a criticism of artists' overconcern with originality and novelty and its negative impact on the lasting value of the painting, some poor readers focused only on a minor point, that artists should discard traditions that no longer meet their needs. Another example occurred in relation to the paragraph quoted above which states that city planning involves both the improvement of existing communities and the creation of new ones. One poor reader defined city planning in the following way: "They tryed to get the people to work closer to where they live." [1] This reader was giving excessive weight to a minor point. In paragraphs which differed only in the presence of adversative connectives, this type of misinterpretation was much less common.

One explanation for the facilitating effect of the presence of adversative connectives on poor readers' ability to weed out minor points concerns schema. The term comes for Bartlett's (1932) seminal study on remembering. He asserts that:

> Many objects, many stimuli, many reactions, [sic] get organized simultaneously into different "schemes," so that when they recur, as, in the world we know they are bound to do, they tend to set into activity various cross-strains or organizing influence.... In all these "schemes" there is opertaing that kind of unwitting analysis which gives weight to certain elements of the whole. (p. 302)

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[1] Responses to the test version without connectives are quoted verbatim.

Thus, the term schema refers to structures, comparison-contrast in this case, as well as content.

By functioning as a clue to a passage's organizational structure, connectives may help poor readers to activate schema relating to the topic under discussion or to its structure. For example, the but in the second sentence of the paragraph discussing city planning (see p. 5) may activate two slots in memory which are then waiting to be filled. In the present study, it is possible that adversative connectives enabled poor readers to identify the comparison-contrast pattern which then provided a framework to highlight salient information in regard to the questions. Once highlighted, it is easier to exclude minor points.

Another function of connectives is to provide redundancy. It may be that poor readers need the redundancy that connectives provide to alert them to the organizational structure. Once alerted, the reader is able to process the information on a deeper level. Rather than taking in separate pieces of information, s/he takes in both the information and how the points relate to each other.

Another problem for poor readers that accounts for some of their misinterpretations of text is the inclusion of extra-textual material. In response to the passage that says that personal property can be abandoned and real property cannot (see p. 5), one reader wrote:

> There are many things that can be abandoned like a car, or a child. Many people abandon their children and then they are being taken care of by someone else.
>
> A train can't be abandoned because it is used every day and people ride in it. Buildings are abandoned. They are not being taken care of then it becomes an abandoned building because no one lives in it. Because of its condition.

The response suggests that the information in the paragraph conflicts

with the reader's personal experience. While the paragraph states that real property cannot be abandoned, this reader might live next door to an abandoned building. By introducing children into the definition of abandonment, the reader again introduces personal experience. The resulting response goes beyond the confines of the paragraph. Without the connectives in the paragraphs, this straying into one's own life was much more common.

An explantion for the role connectives played in helping poor readers to exclude irrelevant information relates to the phenomenon of limited attention. Britton et al. (1982) found that text versions with signals required less cognitive capacity to process, thereby leaving more cognitive capacity to construct in internal representation of text content. When connectives are absent, cognitive capacity is required to infer text relations. Poor readers need energy to decode as well as to comprehend. Therefore, it could be hypothesized that the absence of connectives further taxes poor readers' resources by requiring them to infer the relationship between propositons. When required to make inferences, poor readers often go off the track. Thus, the test version without connectives created a situation likely to give rise to responses unrelated to the text.

Foregrounding Information

Where good readers benefited from connectives was in the function of foregrounding information--focusing the reader's attention on particular information and bringing certain points into prominence. This was a subtle and less familiar use of the adversative connectives which only good readers--and only some of them--were sensitive to.

Reading/Writing Relationships

For poor readers, the reading model exerted an influence on their writing output. (See Figure 1.) There are several reasons why this might have occurred. One explanation centers on the processing level of poor readers. In contrast to good readers who function

at a conceptual level, poor readers often function at the level of wording rather than meaning. Thus, when connectives are present in text, they copy them into their responses. Copying might occur at the rote level and remain a surface feature.

However, more than rote behavior may be involved. Meyer, Brandt, and Bluth (1980) hypothesize that there is a group of readers who they call "comprehension underachievers" (p. 77), a group that might fit into Flavell's (1977) production deficiency category.[1] These readers, they posit, can use organizing structures but need explicit markers. This might explain what occurred in the present study where adversative connectives might have been the explicit markers. If so, the presence of adversative connectives in text reminded poor readers of the need to specify the relationship between points. Thus, in addition to helping to make the text relations explicit, the adversative connectives offered a writing model.

This possibility raises an interesting issue. What is the effect of the presence of connectives in text on poor readers' writing skill? Again, the answer depends on whether the difference in response to the test versions reflects a copying phenomenon or a deeper level of processing. It is possible that the imitation of connectives produces the awareness of the need to connect ideas, to explicitly present the relationship between points. While the results from this study do not prove this point, they do suggest it as a direction to pursue. It might be that the characteristics of text to which poor readers on the college level are exposed play a role in developing their writing abilities, a weak area for most poor readers (Bossone & Weiner, 1973; Lunsford, 1978).

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[1] A production deficiency involves failure to produce a particular strategy spontaneously "for reasons other than the sheer lack of ability or skill to enact it properly" (p. 198).

Whether or not adversative connectives exert an influence on poor readers' writing abilities, the question of the effect on readability remains important. This study's finding that poor readers included a greater number of adversative connectives in response to text containing connectives lends support to recent questioning of traditional measure of readability. Critics (Bruce, Rubin, & Starr, 1981) point out that readability formulas that include only sentence length and word difficulty fail to take into account other factors that also account for text difficulty. In particular, one of the factors that they point out is the degree of discourse cohesion.

The positive effect of discourse cohesion on readability (Irwin, 1980b) is supported in this study by the fact that there was a significant difference for test version with readers performing better in relation to the version with adversative connectives than to the version without. Given the current situation of large numbers of underprepared college students, text publishers need to concern themselves with making complex materials more readable. It is important that they consider more than word difficulty and sentence length.

What to Teach About Connectives

The role of connectives in excluding irrelevant information. The facilitating effect of adversative connectives for poor readers in excluding irrelevant information has implications for the choice of texts, the delivery of lectures, and the content of classes for content area instructors on the college level. It is only recently that many instructors in subject disciplines find poor readers in their classes. Lacking preparation for teaching this type of student and background in reading theory, some instructors may not always know when their students' poor performance results from reading

problems and when it reflects failure to grasp the subject. Further, even when the cause is reading difficulty, not knowing more precisely what the particular problems are or why students experience them, instructors cannot provide help.

Awareness or poor readers' problem in including irrelevant information and the function of adversative connectives in helping to exclude irrelevant information suggests first that instructors should choose written materials that use connectives to specify the relationship between points. In addition to needing explicit markers in text, poor readers also need clear structural guides in lectures. By carefully and frequently using connectives, instructors could offer help to poor readers in sifting the significant from the insignificant in lectures.

Finally, instructors should make the problem in excluding irrelevant information a focus of attention. When the cause of a mistaken interpretation in a classroom discussion or of a wrong answer to an essay examination is the inclusion of irrelevant information, instructors should redirect students' attention to the text and, when possible, point out the location of the relevant information and the signals to that information. Students should be encouraged to explore their wanderings.

Within the reading classroom, instructors should point out how connectives help to establish the relationship between ideas and present a kind of map of the structure. Specific activities could sensitize students to their tendency to include irrelevant information and give them tools to correct it. One possible activity would be to have students read a selection. Then students would be given questions and a number of responses to the questions. Some of the responses would represent an appropriate use of the textual material while others would include irrelevant information. Spending a short period of time on such an activity, perhaps allowing students

to work in groups, might be an effective way of bringing the problem to students' attention. Another activity would be to have students answer questions based on passages with connectives and then to evaluate their answers in terms of whether they adhere to the passage or whether they include irrelevant information.

Foregrounding information. The function of adversative connectives to foreground information needs to be taught to both good and poor readers. Poor readers, in particular, need to be made aware of the fact that adversative connectives signal a range of meanings and that while contrast or conflict is the most common, it is by no means the only one. While special exercises could be created for this purpose, a better approach would be to apply these strategies to the reading materials already in use. In addition to the convenience, this underscores the point that the range of meanings of adversative connectives is not an artificial creation of reading instructors but a reality of print.

Other linguistic resources and underlying thought patterns. It was suggested that good readers are less dependent on adversative connectives because they are more skilled in using other linguistic resources and more familiar with the thought patterns underlying the adversative relation. Thus, another focus in the reading classroom should be on these linguistic resources and on the thought patterns that underlie the adversative relation.

Linking Reading and Writing

Studies show the usefulness of a combined approach to reading and writing for the skill deficient college student (Bossone & Troyka, 1976; Bowles, 1981; Collins, 1979). Nevertheless, for political or administrative reasons, college reading and writing instructors often belong to separate departments. This study supports the benefit of linking reading and writing instruction. The fact that the version of the reading instrument with connectives stimulated more connectives in poor readers' written responses

indicates that what the skill-deficient college student reads exerts an impact on his or her writing.

In coordinating or combining reading and writing instruction, the two activities become mutually reinforcing. Students who read passages with connectives and then write paragraphs using connectives are at once improving their reading and writing. With this kind of instruction, it might be possible to create a language cycle that would begin to remedy poor readers' poor readers language deficiencies.

In terms of practical implementation of this recommendation, it would be important for reading instructors to be conversant with the pedagogy of writing, and vice versa. Researchers in writing have become interested in reading and reading researchers concern themselves with writing theory (Stock, 1981). This kind of cross-over from one field to another needs to filter down from the theoretical to the practical level. Graduate programs that prepare people to teach reading on the college level should include courses in writing theory and practice and programs to prepare people to teach writing on the college level should require courses in reading theory and practice.

Connectives and Readability

Good and poor readers performed better when connectives were present than when they were deleted. This indicates the positive impact of adversative connectives on readability. Given this finding, publishers should attend to the presence of connectives in text as one aspect of readability.

Beyond the overall facilitating effect of adversative connectives on all readers, adversative connectives helped poor readers to exclude irrelevant information. This is particularly important in terms of publishers' task of presenting complex materials to an audience that experiences reading difficulties and suggests the importance of having explicit markers of text relations. On

one level, the external, connectives signal direction. It may be that on another level, connectives serve as signals of text structure, alerting the reader to the organizational pattern (Herber, 1978). If so, connectives become more than an external feature. As a signal of the organizational structure, they become a vehicle for the reader's restructuring.

Implications for Further Research

The issue that gave rise to this study is the skill deficiencies of the underprepared college student. A number of the findings suggest directions for further research, some relating to connectives and some to other dimensions of the reading process.

Further investigation should be made to explain why poor readers included a greater number of connectives in their written responses given the version of the reading instrument with adversative connectives than the version without these connectives.

Having established the facilitating effect of adversative connectives in a number of areas, the question becomes do other categories of connectives--additive, temporal, causal--have the same effect? Two specific questions to investigate are whether these other categories of connectives help poor readers to exclude irrelevant information and whether their presence in text affects poor readers' writing as did the presence of connectives in this study.

After establishing the relationships between good and poor readers' use of additive, temporal, and causal connectives in their writing, other studies might investigate the relationship between good and poor readers' use of additive, temporal and causal connectives in their writing. Once a sense of the relationship between good and poor readers' use of the different categories of connectives is established, the following questions might be considered. Are

connectives more important in one category than in another? When do different categories assume more importance? Do good or poor readers tend to use lexical cohesion more in relation to some of these categories?

Table 1

A Summary of Significant Results by Reader and Test Version on Analyses of Variance for All Paragraphs

	Level of Reading Skill*	Test Version With and Without Connectivest†
Total Score (50 points)	+	+
Total Information (40 points)	+	
Exclusion of Irrelevant Information (10 points)	+	+

* In this column, a + indicates a significant difference between good and poor readers with good readers superior to poor readers.

† In this column, a + indicates a significant difference between the versions with and without connectives, with all readers performing better on the version with connectives.

Table 2

A Summary of Difference Scores of Good and Poor Readers' Responses to the Reading Instrument With and Without Connectives for All Paragraphs[a]

	Greater Difference for Good Readers	Greater Difference for Poor Readers
Total Score	+	
Total Information	+	
Exclusion of Irrelevant Information		+*

[a]An asterisk denotes a significant difference on simple main effects, $p < .01$.

Table 3

A Summary of Significant Results by Reader and Test Version on Analyses of Variance by Function

		Level of Reading Skill*	Test Version With and Without Connectives†
Contrast or Conflict	Total Score (20 points)	+	
	Total Information (16 points)	+	
	Exclusion of Irrelevant Information (4 points)	+	
Parallel Points	Total Score (20 points)	+	
	Total Information (16 points)	+	
	Exclusion of Irrelevant Information (4 points)	+	
Foregrounding Information	Total Score (10 points)	+	+
	Total Information (8 points)	+	+
	Exclusion of Irrelevant Information (4 points)	+	+

* In this column, a + indicates a significant difference between good and poor readers, with good readers performing better than poor readers.

† In this column, a + indicates a significant difference between the versions with and without connectives, with all readers performing better on the version with connectives.

Table 4

Means for Number of Connectives in Responses to the Reading Instrument by Reader and Test Version

		TEST VERSION	
		With Connectives	Without Connectives
READER	Good Readers (n = 70)	1.40	1.17
	Poor Readers (n = 70)	1.20	.14

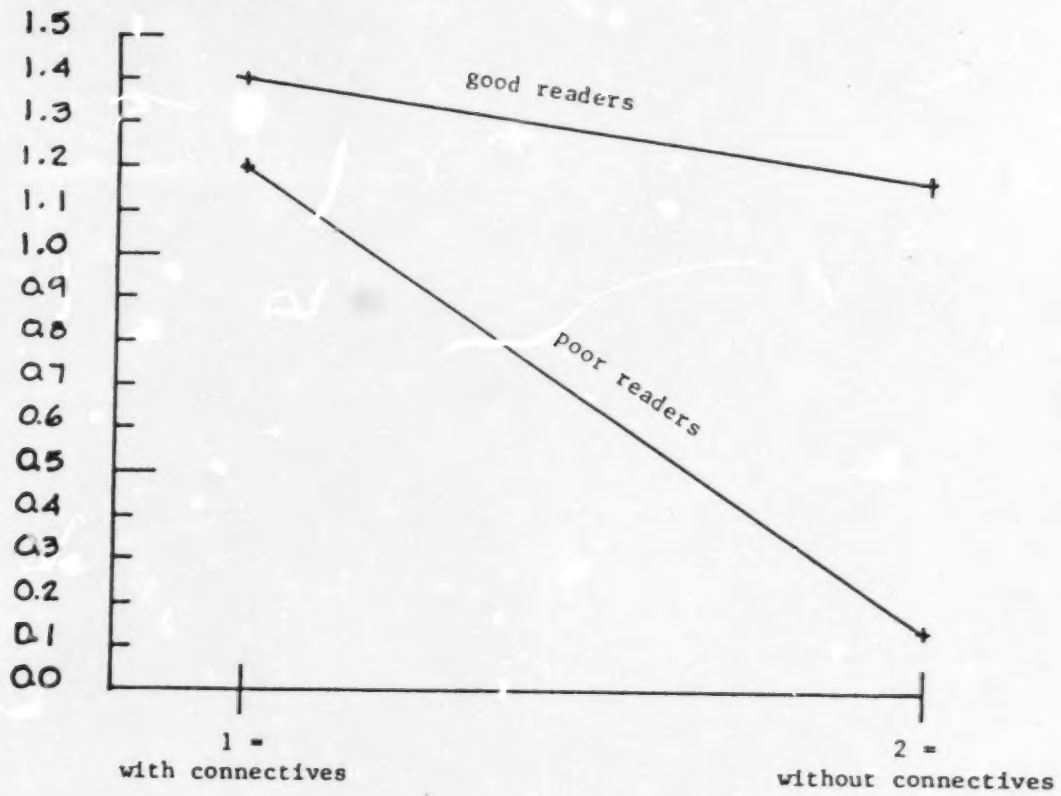

Figure 1. Good and poor readers' inclusion of connectives in responses to test versions with and without connectives.

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